CLAIMS

What is claimed is:

1. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(a) the N gene region of the SARS-associated coronavirus genome; and

(b) the 3' non-coding region of the SARS-associated coronavirus genome.

2. A composition comprising the synthetic nucleic acid sequence of claim 1.

3. Use of the synthetic nucleic acid sequence of claim 1 in a kit for determining the presence or absence of SARS-associated coronavirus in a biological sample.

4. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(a) the N gene region of the SARS-associated coronavirus genome; and

(b) the 3' non-coding region of the SARS-associated coronavirus genome.

5. A composition comprising the synthetic nucleic acid sequence of claim 4.

6. Use of the synthetic nucleic acid sequence of claim 4 in a kit for determining the presence or absence of SARS-associated coronavirus in a biological sample.

7. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of the nucleic acid sequence of SEQ ID NO:1 or of a nucleic acid sequence that is complementary to the nucleic acid sequence of SEQ ID NO:1.

8. A primer set for determining the presence or absence of SARS-associated coronavirus in a biological sample, wherein the primer set comprises at least one synthetic nucleic acid sequence selected from the group consisting of:

(a) a synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

(ii) the 3' non-coding region of the SARS-associated coronavirus genome; and

(b) a synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

(ii) the 3' non-coding region of the SARS-associated coronavirus genome.

9. The primer set of claim 8, wherein the at least one synthetic nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

10. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:2, or a fragment, variant, or derivative thereof.

11. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:3, or a fragment, variant, or derivative thereof.

12. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:4, or a fragment, variant, or derivative thereof.

13. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:5, or a fragment, variant, or derivative thereof.

14. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:6, or a fragment, variant, or derivative thereof.

15. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:7, or a fragment, variant, or derivative thereof.

16. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:8, or a fragment, variant, or derivative thereof.

17. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:9, or a fragment, variant, or derivative thereof.

18. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:10, or a fragment, variant, or derivative thereof.

19. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:11, or a fragment, variant, or derivative thereof.

20. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:12, or a fragment, variant, or derivative thereof.

21. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:13, or a fragment, variant, or derivative thereof.

22. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:14, or a fragment, variant, or derivative thereof.

23. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:15, or a fragment, variant, or derivative thereof.

24. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:16, or a fragment, variant, or derivative thereof.

25. A composition comprising the primer set of claim 8.

26. Use of the primer set of claim 8 in a kit for determining the presence or absence of SARS-associated coronavirus in a biological sample.

27. A kit for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising at least one synthetic nucleic acid sequence and instructions for use, wherein the at least one synthetic nucleic acid sequence is selected from the group consisting of:

(a) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

(ii) the 3' non-coding region of the SARS-associated coronavirus genome; and

(b) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

(ii) the 3' non-coding region of the SARS-associated coronavirus genome.

28. The kit of claim 27, wherein the at least one synthetic nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

29. A kit for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising:

(a) a primer set comprising at least two synthetic nucleic acid sequences, wherein at least of one of the at least two synthetic nucleic acid sequences is selected from the group consisting of:

(i) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome; and

(B) the 3' non-coding region of the SARS-associated coronavirus genome; and

(ii) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome; and

(B) the 3' non-coding region of the SARS-associated coronavirus genome; and

(b) instructions for use.

30. The kit of claim 29, wherein the at least one nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

31. The kit of claim 29, further comprising:

(c) suitable PCR reagents; and

(d) optionally, a positive and/or negative control for determining the presence or absence of SARS-associated coronavirus.

32. The kit of claim 31, wherein the PCR reagents include a thermostable DNA polymerase and dNTP solutions.

33. A method for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising the steps of:

(a) contacting the biological sample with at least one synthetic nucleic acid sequence, under conditions suitable for amplification; and

(b) determining the presence or absence of SARS-associated coronavirus in the biological sample;

wherein the at least one synthetic nucleic acid sequence is selected from the group consisting of:

(i) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome; and

(B) the 3' non-coding region of the SARS-associated coronavirus genome; and

(ii) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome; and

(B) the 3' non-coding region of the SARS-associated coronavirus genome.

34. The method of claim 33, wherein the biological sample is obtained from a subject suspected of having SARS.